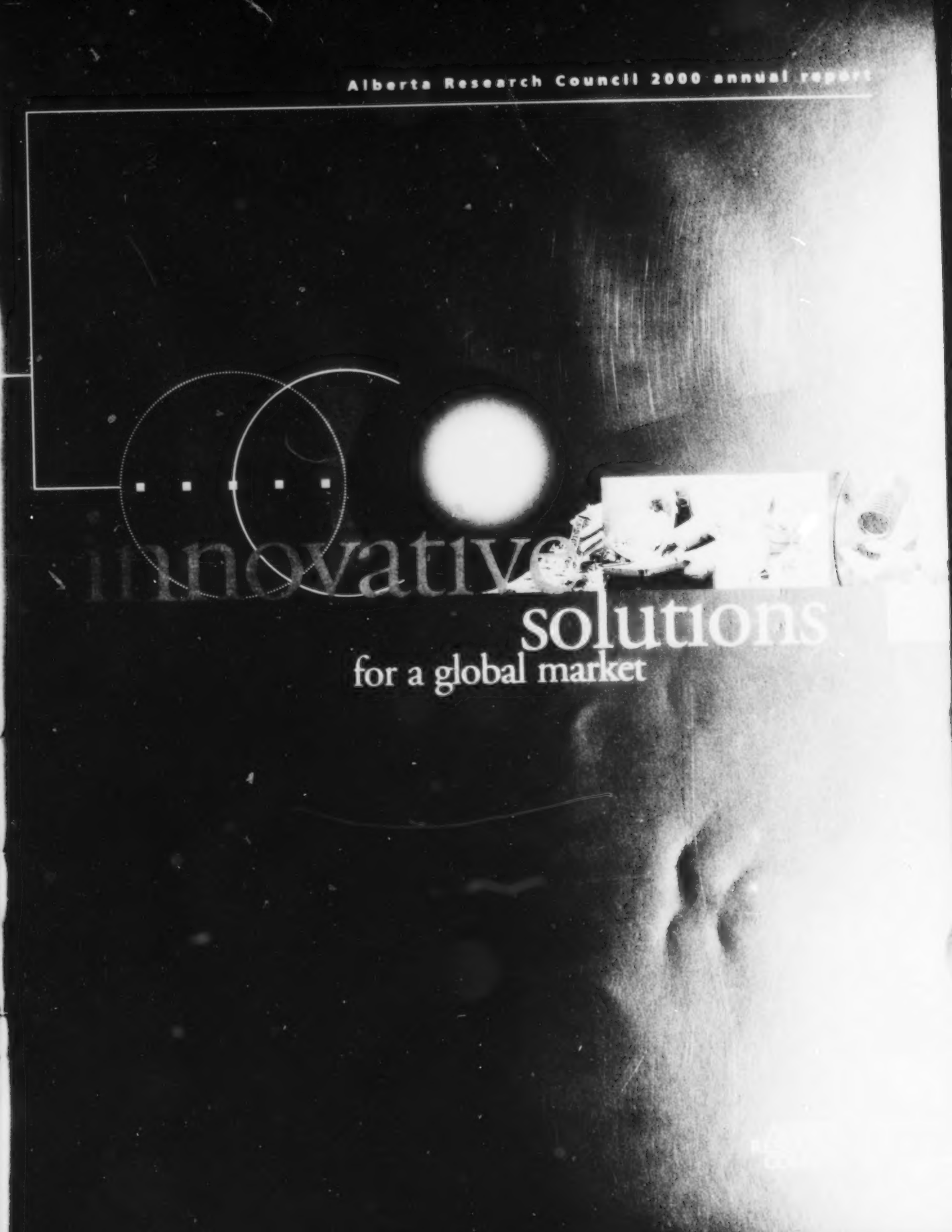


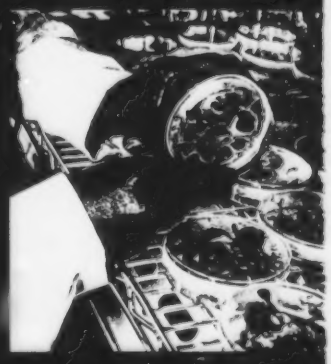
innovative solutions for a global market

Our vision

Working with and for Albertans, the Alberta Research Council (ARC) will be recognized around the world as Canada's leading knowledge organization in assessing, sourcing, developing and commercializing technology.

Our mission

In partnership with global leaders, ARC helps to advance the economy and well-being of Alberta by providing technology and innovation to meet current and emerging needs of industry and government.



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The Alberta Research Council Inc. (ARC) develops and commercializes technologies to give customers a competitive advantage. The corporation performs applied research and development on a contract or fee basis, and co-ventures with others to develop new technologies, deriving a return on investment from the commercialization of new products and services. ARC also conducts applied research for the public good and to support provincial science and technology needs and strategies.

ARC was founded in 1921 and operated as a provincial corporation under the Alberta Research Act until April 1, 1999, when it was incorporated as a not-for-profit business under the Business Corporations Act. ARC is a wholly owned subsidiary of the Alberta Science and Research Authority (ASRA).

ARC is well known for its work in the following areas:

Life Science Technologies

- Integrated pest, disease and weed management, development of diagnostic tools and control agents to reduce crop losses, and development of new strains of crops to increase productivity
- Scale-up and manufacture of biotechnology-based products, including vaccines to improve animal health
- Synthesis of novel carbohydrates for diagnostic and therapeutic applications
- Application of advanced computer and telecommunications technology to the more effective, efficient delivery of health information and knowledge
- Decision support through data analysis and mining
- Web-based systems architecture and software design
- Livestock identification and tracing throughout the food processing chain

Energy Technologies

- Conventional and heavy oil recovery and production technologies, reservoir management processes and protocols, novel down hole and surface oilfield equipment, specialty sensors and instrumentation
- Oil sands upgrading technologies for improved recovery and cost efficiency
- Pipeline maintenance planning
- Non-conventional energy production

Forest Technologies

- Engineered wood products, improved pulping and papermaking processes and alternate fibre sources
- Sensors and process control systems to improve plant efficiency and cost effectiveness
- Remote sensing, geomatics and modeling to support and enhance the sustainable management and use of forest and wildlife resources

Industrial Processes and Services

- Research to understand and mitigate the impact of industrial activities on air, water and land resources, including climate change, greenhouse gases and CO_2 management strategies
- Clean process and waste minimization technologies
- Advanced environmental analysis and toxicology
- Advanced materials applications and testing
- Specialty analytical services
- Advanced flow and sensor technologies for process development and control
- Development and commercialization of specialized ceramic materials and component parts for use in high-performance electronic devices
- Industrial engineering, automation and rapid response manufacturing

In 1999, ARC became a wholly owned subsidiary of the Alberta Science and Research Authority (ASRA), the body responsible for providing strategic direction to the Alberta government with respect to research priorities. Through ASRA, the government has stated its goals to achieve industry research and development investment of $2 billion per annum and a total research and development (R&D) investment of $3 billion in Alberta by 2010. Current R&D investment in Alberta is about $1 billion, so there is considerable market and growth opportunity for all R&D providers. Within this framework, ARC is the government's principal performer of applied research and development, and the catalyst for much of the desired growth.

To fulfill its mission, ARC operates three distinct core businesses. First, we perform applied research and development for customers and partners on a contract or fee basis. This work is fully funded through commercial business contracts. Second, we co-venture with others to develop new technologies, deriving a return on investment from the commercialization of new products and processes. ARC involvement in technology commercialization can shorten the leap from concept to viable business and give Alberta industry an edge in the global marketplace. Third, we conduct applied research for the public good and to support provincial science and technology needs and strategies. In this role we use government investment for longer-term, higher-risk research in areas of strategic value to the province, such as climate change.

At times, our work puts us in apparent competition with the private sector. However, ARC is committed, to the fullest extent possible in keeping with our mission, not to undertake work that can readily be done by Alberta's private sector. We focus on research areas that are critical to the economic development of Alberta, but where industry is not yet widely involved or interested in investing. Where competition seems to occur, there is generally a compelling reason for ARC to provide the service, such as maintaining standards or providing more specialized expertise than is generally available in the private sector.

Our primary objective is to grow Alberta's innovation economy. When we select projects, our decision-making criteria require that the net effect of ARC involvement on the Alberta economy be clearly positive. We continue to manage our business with this objective in mind. In so doing, we believe our work will ultimately benefit every company involved in the innovation marketplace and extend to every Albertan.

On behalf of the Board of the Directors of the Alberta Research Council, I present this annual report.

Victor Doerksen

Chairman of the Board of Directors
MLA, Red Deer-South
March 2000

We have now completed our first full year operating as a business corporation. In line with our evolving role, we implemented a new market-driven business strategy. I am pleased to report our more focused efforts have paid off in substantial growth. We achieved revenues of $71 million for 1999/2000, up from $61 million reported last year.

We still have a public good role providing strategic research and development of long-term value to the province. Typically, this work is in areas where industry is not ready to invest. The benefits to the province are evident: in return for the government's investment of $27 million in 1999/2000, ARC and its partners generated an estimated $150 million in economic activity.

We concentrated our energies this past year on initiatives to aid our transition to a performance-driven technology development and commercialization business that responds to our customers and partners.

The acquisition of the Petroleum Recovery Institute (PRI) and C-FER Technologies Inc., and subsequent consolidation of our energy program, resulted in one-stop service for the energy industry. This is well-received by industry in Alberta and international markets. We are also applying this one-stop strategy in other sectors. For example, the forestry industry can find expertise at ARC in every area from management of forest resources to development and scale-up of value-added products.

In order to improve our service delivery, we now operate four major divisions, each reporting to a vice president. The divisions are Life Science Technologies, Energy Technologies, Forest Technologies, and Industrial Processes and Services. This new structure helps us carry out our business more effectively and allows us to move our business development and planning resources closer to the action. Most significantly, it aligns our capabilities more closely with ASRA and the future development of Alberta's economy.

Customer and employee satisfaction continue to be high on our list of priorities. I am happy to report that both continue to rise as we make the transition to a more entrepreneurial business operation.

Finally, I'd like to welcome and thank ARC's new Board of Directors and in particular Board Chair Victor Doerksen, MLA for Red Deer-South. Their contributions to date have been substantial and their combined scientific knowledge and business experience serves ARC well as they guide the corporation into the new millennium.

John R. McDougall

Managing Director and CEO
March 2000

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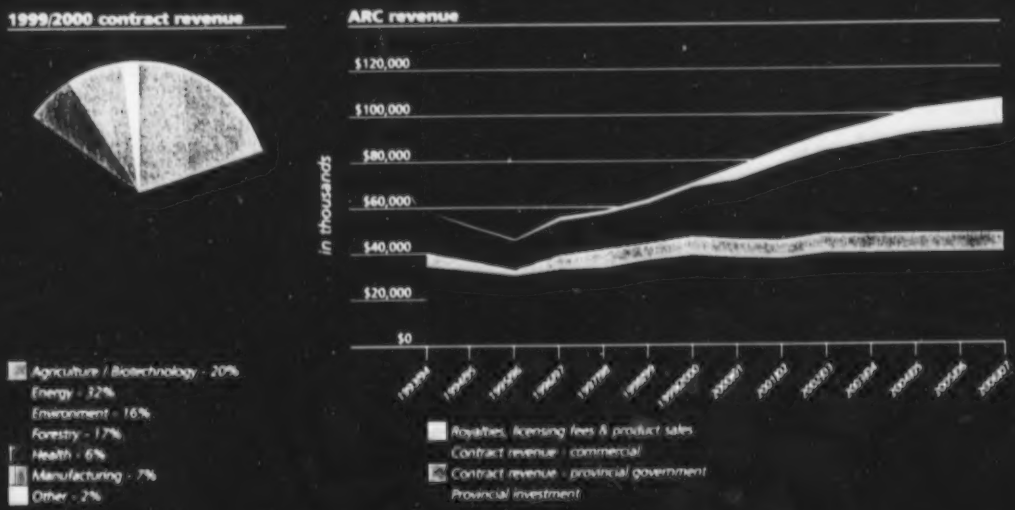
Financial highlights

- ARC performed R&D contract services for the private sector and other external customers for a total of $30.1 million, which was $5.5 million higher than the previous year. ARC also received $1.7 million in royalties, licensing fees and product sales from the commercialization of technology.
- ARC acquired the Petroleum Recovery Institute on April 1, 1999. This added $2.2 million to ARC's consolidated revenues for 1999/2000.
- ARC acquired C-FER Technologies Inc. on July 31, 1999. This added $2.7 million to ARC's consolidated revenues for 1999/2000.
- ARC's net revenue (after expenditures) was $124,000.
- ARC worked with more than 850 customers and partners during 1999/2000.
- The Province of Alberta has targeted an increase in the contribution of high knowledge-based industry to 25 per cent of provincial GDP by 2010. ARC's budget of $78.9 million for 2000/01 is an aggressive target that reflects its role as the province's principal performer of applied research and technology development, and its plans to capture a portion of this growth in the marketplace.
- ARC plans to grow to a $100-million corporation by 2004/05 by increasing contract revenue and royalties, licensing fees and product sales.



More than ever, the future belongs to the innovator. It also belongs to the swift. As businesses compete in the rush to the global marketplace, they need innovative technology that anticipates market demands. And they need it "yesterday".

innovative

for a global market

Alberta's pre-eminent R&D performer, ARC works with clients and partners to research and develop novel technologies and move them to market. We respond to business challenges, bringing to the table a unique combination of technological expertise, world-class facilities, depth of knowledge in Alberta's key industrial sectors and an ability to invest in innovations with commercial potential. Through our focused, market-driven business strategy and international reach, we streamline the commercialization cycle and give our partners a head start in the global marketplace.

This report presents some of the innovative projects and activities we undertook in the past year in our three areas of business – public good research to advance Alberta's critical science and technology needs, applied research and development under contract with industry and government, and technology development and commercialization. Through these activities, we continue to be a key contributor to the economic success and quality of life of all Albertans, now and into the future.

Sometimes the only thing standing between a novel idea and success in the marketplace is strategic applied research and development. ARC responds to industry needs by providing market-driven technology solutions to business challenges.

providing market-driven solutions to business challenges

Multispectral measurement of oil sands grade: Brenda Wright, P.Geol., staff geologist, Syncrude Canada Ltd.

Remote sensing device will reduce operating costs for mining operations

A remote sensing instrument developed by ARC and its partners for the oil sands industry has potential to reduce operating costs for a wide range of mining companies. The instrument uses infrared technology to map oil sand grade at the mine face, allowing operators to control the grade of oil sand sent to the extraction plant. The system can be easily adapted to different minerals and mining methods and has already been tested on nickel-copper ores. ARC, the lead participant in this PRECARN-sponsored project, developed the system with fellow participants MPB Technologies Inc. and Syncrude Canada Ltd. Last summer, ARC hosted workshop on the Intelligent Sensing Systems for the Oil and Mining Industries Project, where it showcased the technology to potential users. ARC, along with its project partners, is currently pursuing licensing opportunities and is preparing a plan for commercializing the technology.

"Partnering with ARC on this project has given us the opportunity to explore a potentially valuable technology while working with a group of talented people. The experience has prompted us to explore additional ways of working together." — Pat Dougan, research associate, Syncrude Canada Ltd.

Peat sausage seedling system benefits nurseries and reforestation industry

There are sausages for eating and there are sausages for planting. ARC developed the latter in response to a need from nurseries and reforestation companies for a better way to grow seedlings. Both industries use containers that require manual assembly to grow seedlings. This is both costly and time consuming. These containers must be collected, washed and disinfected for reuse and are difficult to recycle once damaged. ARC's system combines a peat extruder with a plastics extruder to produce a plastic sausage with a peat core that can be cut to desired lengths for seedling planting. The plastics extruder produces ribs in the sausage "skin" that act as zippers for easy removal of the seedling. The system also protects roots from damage during shipping and planting. By incorporating the extruders into their operations and manufacturing the containers themselves, nurseries and reforestation companies can realize tremendous savings.

Jack pine seedlings thrive in their ARC-developed peat plugs under the care of Karen Sorensen, Climate Change Technologies

ARC launches telehealth interoperability lab

Telehealth is an emerging health care technology that allows physicians to diagnose patients from a distance. Implementation of telehealth technology has been industry-led, resulting in vendors with incompatible systems. In Alberta alone, there are six different vendors providing telehealth systems. Alberta Health and Wellness's we//net seeks an integrated, province-wide telehealth system. To address this challenge, ARC established a Telehealth Interoperability Laboratory in Calgary to develop interoperability guidelines for telehealth systems and test vendors' equipment to ensure these guidelines are met. The Canadian Institute for Health Information presented ARC's standards at the International Standards Organization meeting in Tokyo to be considered for international use.

"The expertise represented by ARC's Telehealth Interoperability Lab is of considerable assistance to alberta we//net in setting standards and helping us to deal with a technology that is rapidly evolving."

— Trevor D. Cradduck, Telehealth director, alberta we//net

Heavy oil extraction technology offers economic and environmental benefits

ARC has been working with Suncor Energy Inc. to develop a new heavy oil extraction process that will lower costs and reduce greenhouse gas emissions. The process combines elements of two existing in situ extraction processes – a solvent-assisted (cold) "VAPEX" process and a thermal (hot) "SAGD" process – and is being evaluated for use at Suncor's Firebag lease, a heavy oil reserve near Fort McMurray. The new process will reduce costs, as it requires less water, and will generate less CO_2 than current steam-assisted methods. The original project, begun in 1997, was co-funded by Suncor and ARC. A consortium of six companies, including Suncor, now supports the work. ARC provides reservoir technology in support of Suncor's long-term goal of integrating extraction and operating processes into a synergistic approach that may eventually see the company, for example, produce electricity through co-generation.

Client: Amity Plastics Ltd., Clyde, Alberta, plastics recycler

Challenge: Amity was in the business of grinding, washing and reselling plastic. The company wanted to add value to its enterprise by using recycled plastic to create a product, instead of shipping raw plastic out for others to use.

ARC solution: Develop a process to produce highway guardrail posts made from recycled plastics. ARC already had the technology available for commercialization and Amity found it a good fit for its business. The technology involves a thermal/pressing technique, a reinforcing system and a baking process. Plastic posts produced using this process last longer than wooden posts because they aren't susceptible to fungal rot. ARC staff helped Amity get the technology operational.

ARC technology adds value to Alberta plastics recycler

Outcome: Alberta Infrastructure has specified use of Amity guardrails in non-critical areas and is supporting Amity in crash-testing the rails. ARC continues to work with Amity to help the company improve and strengthen the product.

"With ARC's technology, we can close the loop in plastics recycling." — Dwight Smith-Gander, owner, Amity Plastics Ltd.

Recycled plastic guardrail posts provide a viable alternative to wood: Dwight Smith-Gander, owner, Amity Plastics Ltd., and ARC's Bill Kay, Industrial Ecology

Field-testing of MultiVacc4 fish vaccine: Joe Barlow, director, Fish Health Services, Microtek International Ltd.

ARC-manufactured fish vaccine gains USDA approval

ARC's partnership over the past decade with Victoria-based Microtek International Ltd. is an excellent example of how the corporation uses its manufacturing capabilities and scale-up know-how to help companies get their products to market. Microtek, a leading Canadian biotechnology company, produces fish vaccines and diagnostic kits for the aquaculture industry. The ARC-Microtek partnership reached a significant milestone in November 1999 when Microtek was granted a permit from the United States Department of Agriculture (USDA) to sell its MultiVacc4 fish vaccine in the lucrative U.S. market. The vaccine is manufactured, formulated and packaged in ARC's newly upgraded fermentation plant. Microtek provides labeling and quality control. MultiVacc4 is the first Canadian product manufactured at ARC to be approved for sale in the U.S. This development is a critical step in positioning ARC in the animal health care industry and in expanding Microtek's sales into new markets.

"This is an important step in our relationship with ARC. This permit to market our vaccine to customers in the U.S. is a significant breakthrough and will reap dividends well into the future."

— Julian Thornton, vice-president, Microtek International Ltd.

New system helps mills produce top-quality OSB

ARC and Edmonton-based VisionSmart have teamed up to create an infrared system that will help the producers of oriented strandboard (OSB) reduce costs and better control variations in board density. Variations in density can lead to physical and mechanical problems in the board and present a major challenge for OSB producers. ARC and VisionSmart developed a system that measures the density across each panel as it comes from the press. This is accomplished by analyzing the rate of cooling of each part, which is directly related to density. Operators can then determine if density adjustments are needed to make the board uniform. The system also allows producers to reduce raw material costs because uniform panels can be made less dense overall without losing quality. Savings for a medium-sized mill could run as high as $750,000 a year. VisionSmart has applied for a patent on its part of the technology and both partners are now working to commercialize the system.

"Our association with ARC has led to a synergistic development approach. We are able to achieve much more and move with greater certainty in technology development because of this teaming."

— Daniel Kenway, president, VisionSmart

Commercialization is next for the infrared system: Siguo Chen, Forest Products, and Daniel Kenway, president, VisionSmart

Research feeds into clean air standards

ARC researchers have been collecting and analyzing emission samples from a wide range of industrial sources, as well as automobile exhaust and road dust. The project is aimed at better assessment of the particulate matter in the air we breathe. Particulate matter is any microscopic or submicroscopic substance in the atmosphere – from man-made sources, such as industrial operations, or natural sources, such as forest fires and dust storms. In high concentrations it can pose serious health and environmental risks. Alberta Environment initiated a project to determine the profiles of particulate matter emitted by various sources in Alberta as a preliminary step toward setting new ambient guidelines for particulate matter. ARC is conducting sampling, laboratory work and analysis for the project, which involves stakeholders from industry and various levels of government.

"ARC has been a very valuable asset to us during our research on particulate matter source characterization. With their expertise in this field, we've been able to 'home grow' additional capabilities, moving Alberta to the forefront of particulate matter research."

— Dr. Long Fu, air chemistry specialist, Alberta Environment

Abdel Kharrat, Analytical Chemistry, studies a filter sample of the air we breathe

Process to recycle water could save poultry processor $60,000 annually

ARC developed a water recycling process that could save Edmonton-based Lilydale Foods $60,000 a year. Lilydale uses a water chilling process to remove spoilage and harmful organisms from poultry and to retard the growth of remaining organisms. This poultry chilling process consumes large quantities of water and electrical energy. With support from the Alberta Environmentally Sustainable Agriculture Program, Lilydale approached ARC to develop a process to recover this water, while meeting certain strict criteria. The process had to conform to Agriculture and Agri-Food Canada's food safety regulations, as well as Lilydale's requirements that the quality of the product be maintained and chemical additives kept to a minimum. ARC developed a process using natural food-grade products to remove organic matter and ozone to destroy potentially dangerous organisms. The process effectively recovered 70 to 80 per cent of the water during field trials. Used in a full-scale operation, the process could substantially reduce water use and costs. Further savings would result from reduced refrigeration costs.

Client: Daishowa-Marubeni International Ltd., Alberta-Pacific Forest Industries Ltd., Weyerhaeuser Canada Ltd. and Alberta Plywood Ltd.

Challenge: Managing spruce and aspen in a mixedwood stand is a good strategy to ensure sustainable operations, biodiversity and fibre production. Four Alberta forestry companies collaborated to promote mixedwood management in their industry and develop management strategies and monitoring guidelines that will help companies set and achieve their goals with mixedwood management. One of the first needs identified by industry was an understanding of what work had already been done in mixedwoods.

ARC solution: ARC developed a mixedwood management science database containing reports from studies on tree performance in mixedwood stands. Almost half of these studies are from Alberta trials. The database is the first part of a multi-phase project that involves pooling information and carrying out new trials to support the development of sound growth and yield models.

ARC develops mixedwood management database for forestry industry

Outcome: In addition to providing the industry with quick access to existing research results, the database shows where further research is needed.

"The people at ARC have advanced the development of mixedwood management systems through the development of the mixedwood management database. They have a good understanding of the issues involved and are very responsive to the needs of the industrial partners."

— Steve Luchkow, woodlands superintendent, Daishowa-Marubeni International Ltd.

Diabetes project with CRHA will aid chronic disease sufferers

ARC and the Calgary Regional Health Authority (CRHA) are pursuing a joint project aimed at empowering diabetes patients to manage their own care and, ultimately, increase their longevity and quality of life. Currently, diabetes affects six per cent of Canadians and 25 per cent of First Nations people. Diabetes has no cure and is a leading cause of death by disease, as well as of adult blindness, kidney failure and amputation of limbs. Research shows that through close monitoring, a diabetic can maintain sight and increase longevity by approximately five years. As an added benefit, a system designed to empower diabetes patients could save the CRHA up to $2 million per year and have a total economic impact of as much as $10 million when factors such as lost wages and productivity are taken into account. The CRHA/ARC project will set up an information system using the Internet to promote education for diabetics, as well as better communication between patients and care providers. It is expected that a Canadian company will be set up to market the system in Canada. If successful, this initiative will be adapted to manage other chronic diseases.

"The chronic disease information initiative is a tremendously exciting project that will take us into a new era of managing chronic diseases such as diabetes. The commitment and professionalism of the Alberta Research Council and its staff will help bring a high quality product to fruition." — Marlene Mysak, director, Ambulatory Clinics and Services, Calgary Regional Health Authority

Managing diabetes a team effort: from left, Dr. Peter Sargious of ARC's Health Informatics program, diabetes patient Rita Henningsmoen, and Marilyn Visser, clinical nurse specialist/predialysis manager, Renal Unit, Foothills Hospital, Calgary Regional Health Authority

Novel technology tackles oil sands reclamation

Scientists at ARC and Syncrude Canada Ltd. have jointly developed a new process that uses the by-products of an oil sands operation to create a self-sustaining system where plants can grow. Surface mining and water-based extraction of Alberta's oil sands generate large volumes of tailings sand and fine tailings. The tailings slurry, containing water, bitumen and fine- and coarse-grained materials, is pumped into large settling basins to begin consolidation into mature fine tails. Mature fine tails can be processed further to increase consolidation to a state known as composite tails. Research conducted by ARC shows that both these materials can be readily reclaimed. The technique is based on principles of aggregation and combines mature fine tails, composite tails and peat moss to provide suitable substrates for plant growth. This technology gives industry an alternative for reclaiming oil sands processing by-products and could be put to practical use on a commercial scale in the near future.

"We have always had a good working relationship with the Alberta Research Council. The scientists I work with are very professional, knowledgeable and friendly. The quality of research and reports submitted meets or exceeds my expectations."

— Martin Fung, research associate, Syncrude Canada Ltd.

An ARC-developed native grass at Syncrude Canada Ltd

Native plants take root in innovative oil sands reclamation project at Syncrude Canada Ltd., under the care of ARC's Xiaome Li, Climate Change Technologies

Client: Syncrude Canada Ltd.

Challenge: Syncrude had a problem with large rocks entering their slurry pipelines, causing damage to pumps and valves.

ARC solution: ARC implemented an acoustic non-intrusive monitoring system to detect the rocks and warn operators so that preventive action could be taken.

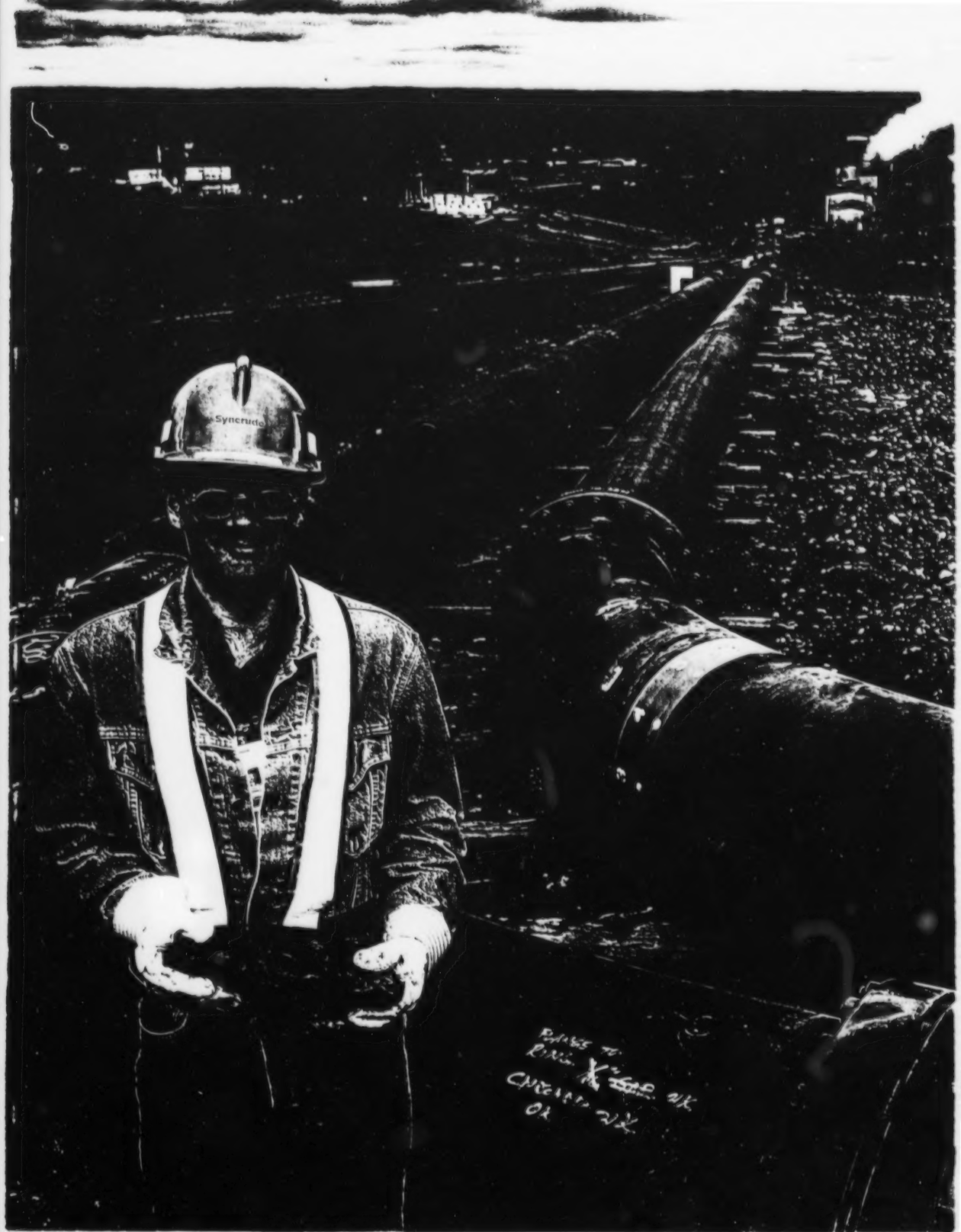
ARC solves client's rocky problem

Outcome: A prototype system was tested successfully in 1999 and a permanent monitoring system was installed in January 2000. ARC is conducting further work to refine the system.

"ARC's technical expertise and practical approach to solving problems resulted in the successful implementation of novel technology in the detection of rocks in slurry pipelines. This collaborative effort between ARC engineers and Syncrude maintenance and operations personnel enabled the development of an idea into an operable system in a very efficient manner."

— Mal Carroll, M.Sc., P.Eng., technical advisor, Mine Maintenance, Syncrude Canada Ltd.

Mal Carroll, Syncrude Canada Ltd., can now easily detect large rocks in slurry pipelines



Alec McClay, Crop and Plant Management, releases tiny biological control agents onto scentless chamomile in field-trial tents

"Getting the bugs out" in aid of Alberta's agriculture industry

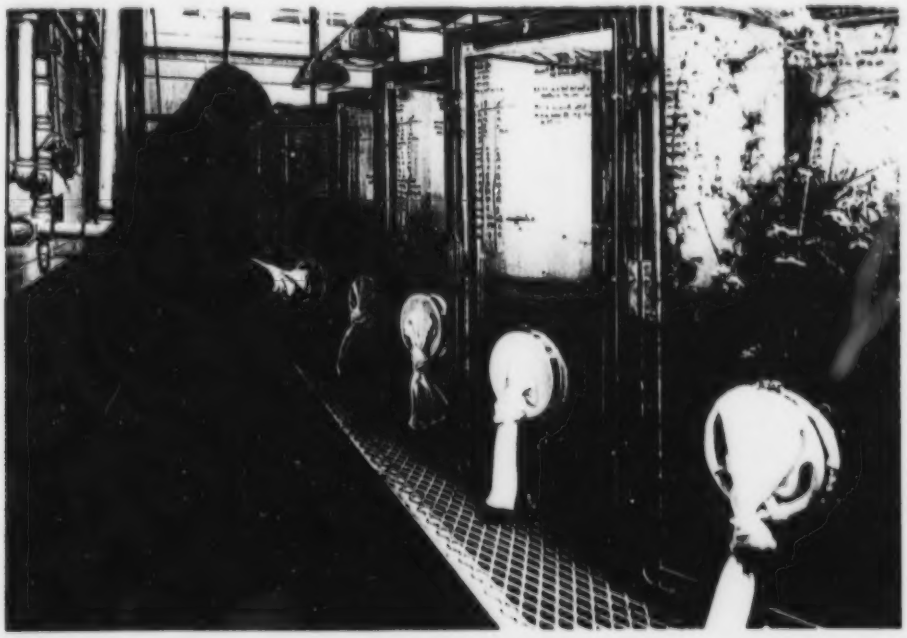
Alberta's farmers spend hundreds of millions of dollars a year on herbicides to combat the threat of economic loss due to noxious weeds. But extensive use of herbicides raises environmental concerns and can lead to herbicide resistance in some weeds. ARC is researching ways to attack this problem by using biological controls involving insects, with the expectation that such methods will prove less costly and more environmentally friendly than chemical approaches.

One weed showing herbicide resistance is false cleavers. This weed is increasing rapidly across the prairies and threatening to contaminate canola crops, particularly in the Peace River region of Alberta. Cleavers contamination can downgrade a canola crop, resulting in price reductions of $13/tonne. ARC scientists are working to control false cleavers with a new species of gall mite *(Cecidophyes rouhollahi)*.

Scentless chamomile is also a serious problem on disturbed and agricultural land in the Prairie provinces. It can spread rapidly due to its profuse seed production, causing crop yield losses as high as 50 per cent. It becomes abundant in urban or industrial areas and along utility rights of way. ARC researchers are studying ways to attack this weed in the stems, seeds and buds, using three different insects.

Toadflax is another difficult and expensive perennial weed for farmers and municipalities to control. ARC studies show promise of controlling this weed with a weevil *(Mecinus janthinus)* that attacks toadflax by boring through the stem.

ARC intends to grow biological control agents that show potential and to make them available, along with information from our studies, to producers and weed control staff. This work will be conducted in cooperation with Alberta Agriculture, Food and Rural Development.



Mini-greenhouses allow Jim Tansey, Crop and Plant Management, to monitor the weed-eating efforts of gall midges

ARC keeps a sharp eye out for unique opportunities to support the development and commercialization of promising technologies in Alberta. In doing this, we look beyond the existing marketplace to anticipate market demands of the future.

investing in technologies for tomorrow's marketplace

Nurturing innovation for Alberta's future

Our Technology Commercialization Office co-ventures with industry and government partners to ensure that innovations with commercial potential get into the marketplace and earn a return on investment. ARC's seed capital investment fund provides early-stage, high-risk seed investment to help bridge the technology development gap between novel idea and viable business.

Strengthening our core capabilities

ARC's investment strategy is based on building powerful scientific capacity and innovative skills around technology platforms. A technology platform is an integrated set of technologies with the potential to provide multiple commercialization opportunities to ARC.

In 1999/2000, we conducted a detailed review of our existing technology platforms and approved a new platform in data mining. Plans for developing these platforms will form the basis of our investment portfolio strategy for the coming year. ARC platforms are:

- engineered fibre composites
- sensors and process controls
- animal vaccines
- carbohydrate chemistry
- dispersed catalyst upgrading
- pest biocontrol
- transgenic plants
- well-control technologies
- data mining

Transgenic plants are one of ARC's technology platforms

Partnering for progress in technology commercialization

ARC builds collaborative relationships with external partners to further our research and development, as well as Alberta's technology commercialization goals. For example, we have a long history of collaboration with Alberta universities in a number of areas where our organizations complement each other's resources and expertise. Recently, ARC and the University of Alberta's Industry Liaison Office were among several major agencies that joined forces to form the Alberta Technology Commercialization Network. Other partners in this endeavor include the Alberta Heritage Foundation for Medical Research, the Protein Engineering Network of Centres of Excellence, the University of Calgary's University Technologies International Inc., and the Canadian Bacterial Diseases Network.

Extending our international reach

ARC signed a Memorandum of Understanding in September 1999 establishing a joint venture with the Singapore Productivity and Standards Board. This joint venture, called TC2, provides a vehicle to link Alberta technologies with Asian entrepreneurs interested in commercializing the technology. The agreement also paves the way for transferring technologies from Singapore to Alberta for commercialization. We now have a senior executive based in Singapore to lead our activities related to this alliance.

Growing Alberta's high-tech manufacturing sector

ZiMARC

ARC launched a new initiative to bolster its advanced materials program and keep a promising new technology in Alberta. ZiMARC develops and commercializes specialized materials and components for use in the manufacture of high-performance electronic devices for industrial, communications and transportation applications. The technology involves applying metal layers to aluminum nitride. This ceramic material has outstanding capabilities to manage and remove heat, making it an ideal base for mounting semiconductor chips and other electronic devices. ARC will work to develop other applications for the technology.

ZiMARC currently operates much like an independent manufacturing business and has many internationally recognized customers. ARC's plan is to incubate the business and then spin it off as a private company, in keeping with its strategy to foster the growth of new, high-tech companies in Alberta.

ZiMARC produces specialized materials and component parts for high-performance electronic devices: from left, Peter Lukomskyj, Joseph Kung and Dan Djukich

Expanding our world-class facilities and expertise

We made a number of additions and upgrades to our facilities and expertise last year that will enhance our R&D capability and expand the scope of services available to our customers. By anticipating the future needs of Alberta industry and the markets we serve, these strategic investments will increase Alberta's competitiveness globally.

Papermaking lab offers one-stop service to pulp and paper industry

Early in the year, ARC unveiled a full-service laboratory that provides comprehensive product development expertise to Alberta's pulp and paper industry. ARC's new papermaking laboratory will be used to help members of Alberta's Mechanical Pulping Consortium develop new products and improve existing products.

The addition of the laboratory enables ARC's pulp and paper business to model all the processes of a fully operational mechanical pulping mill. By simulating systems and conditions found in Alberta's mills, the group can use their expertise to help industry clients address process and product development obstacles. This allows mills to develop and test new products without disrupting production in their own plants. The papermaking laboratory was funded in part by the Governments of Canada and Alberta through the Western Economic Partnership Agreement.

Colin Cathrea of the Pulp and Paper group develops and improves products and processes in the mechanical pulping pilot plant

Biotechnology manufacturing plant advances industry in Alberta

The Alberta Science and Research Authority has identified the life sciences as a key element in the province's technology strategy, and ARC views animal vaccine development and production as a major focus within that strategy. A $3-million upgrade to our biotechnology manufacturing plant will enhance our ability to respond to international demands for the production of animal vaccines and other products. The plant was established 15 years ago and is one of the finest fermentation process development, scale-up and manufacturing facilities in North America. The upgrade helps us meet the stringent requirements of the United States Department of Agriculture and will allow us to attract European companies, for example, that want to produce vaccines for sale in North American markets.

Acquisitions and realignment better serve Canada's energy sector

ARC acquired C-FER Technologies of Edmonton and Calgary-based Petroleum Recovery Institute (PRI) last year, significantly expanding our technology development offerings to the energy sector. We subsequently undertook a reorganization of our energy sector capabilities to meet more effectively the R&D needs of a global energy industry.

In January 2000, ARC integrated the R&D programs of PRI and ARC's Heavy Oil and Oil Sands business unit under the name Petroleum Recovery Institute. As part of this integration, ARC will establish a technology transfer centre with offices and some laboratory space located within ARC's new Calgary facility. The centre will focus on field testing and demonstration of new, lab-proven technologies, with a goal to transfer fully developed, commercial technologies to industry.

We also consolidated our reservoir and recovery laboratory R&D and numerical simulation activities within ARC's Mill Woods facility. This group will develop new recovery technologies for heavy oil and oil sands applications, and for conventional oil and gas operations. Our R&D programs will address the strategic needs of the province, and provide contract technology development and consulting to industrial and international customers.

C-FER Technologies will continue to operate as a separate company. The company is well known for developing engineering innovations for the drilling, production and pipeline transportation sectors of the energy industry through its unique expertise and state-of-the-art laboratory facilities.

Laurier Schramm is the new executive director of the Petroleum Recovery Institute

The Alberta Research Council was incorporated as a not-for-profit business under the Business Corporations Act on April 1, 1999. Our new status as a corporation reflects our continuing evolution.

a results-oriented organization: efficient, effective, entrepreneurial

Growing our intellectual capital

ARC's intellectual capital is the primary advantage that helps us give our customers a competitive edge and achieve our goals for the benefit of Albertans. Our intellectual capital is the knowledge and experience of our employees, the learning we have shared over the years with our partners and customers, our organizational processes, values and culture, and our patents and other intellectual properties. As a knowledge-based organization, we count these as our most valuable assets.

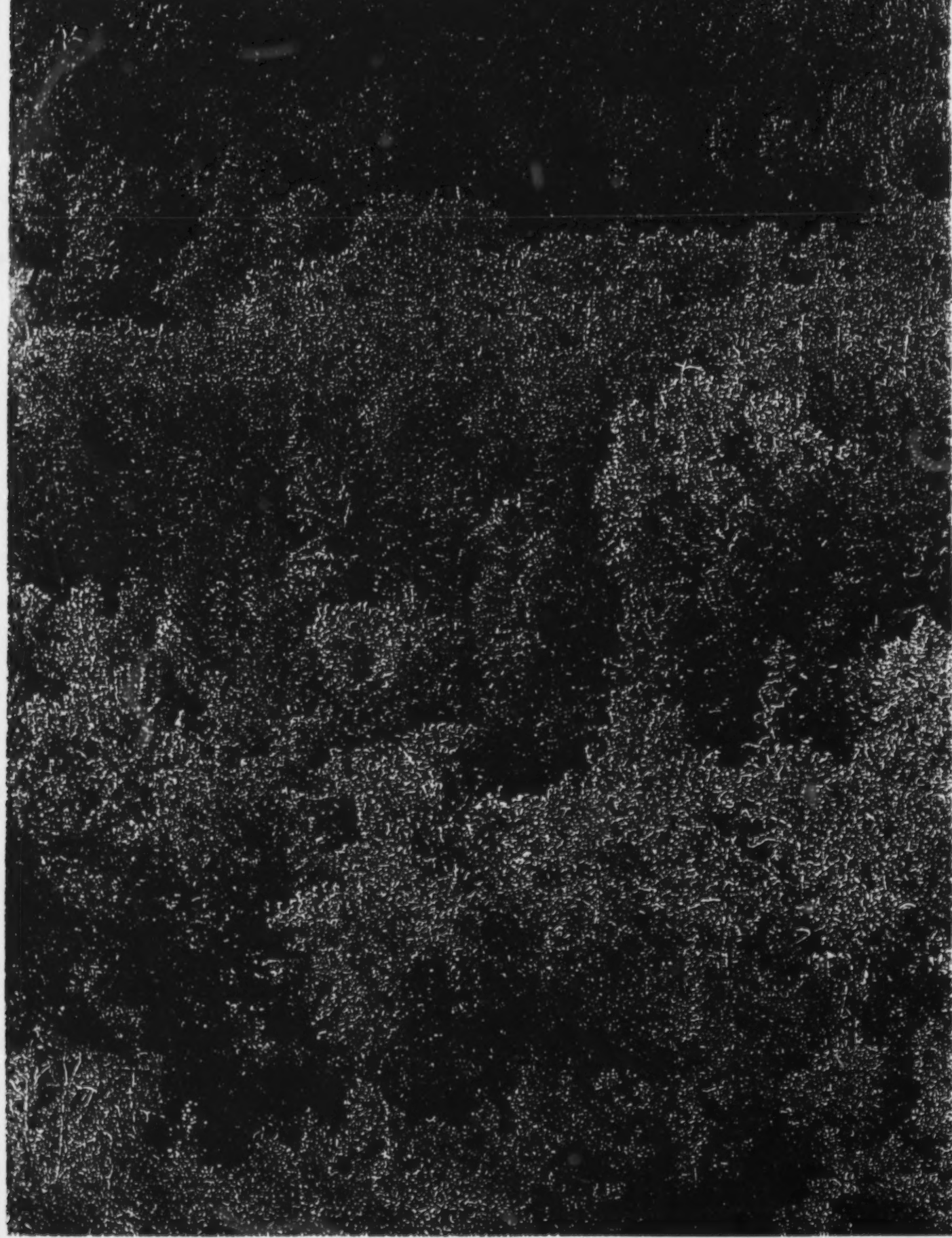
Strategic hiring

Through our strategic hiring program, we enhance our core competencies and develop new capabilities. In the past year, we continued to add strategic hires, such as a new corporate planning coordinator position, to increase our technological depth and business skills.

Training

We increase our core capabilities by nurturing our employees' knowledge and expertise. To help us accomplish this, we have established corporate funding to develop and maintain core competencies at all levels of the organization. Since 1998, ARC has funded employee development in coaching, project management and sales. In 1999, we added a technology development course and established training expectations for our technical and administrative employees.

Walt Neilson, ARC Operations, leads an internal Professional Selling Skills course



Reorganizing to better serve our customers

In line with our transition to a not-for-profit business corporation, we announced a new Board of Directors, whose combined business, industry and research expertise connects ARC more directly to the economic community.

We also reorganized into four new research divisions, each directed by a vice-president, to better serve our customers:

- Life Science Technologies
- Forest Technologies
- Industrial Processes and Services
- Energy Technologies

This new structure allows us to better focus our core capabilities and align them more closely with our customers' needs and the overall direction of Alberta's economy.

ARC's Flow and Sensor Technologies group responds to industry needs

Creating focused businesses to address market and customer needs

"Oil Sands processing operations have some unique measurement requirements, which cannot be addressed by commercially available systems. Commercial systems often require extensive adaptation; often, totally new methods must be developed. While Syncrude has conducted significant in-house development in this area, we find it difficult to maintain the depth of expertise required. For this reason, Syncrude applauds ARC's decision to form a new Flow and Sensor Technologies business unit. We anticipate developing a close association with this group as an effective means to continue development of, and support for, the specialized sensing and measurement systems vital to the efficient operation of oil sand processing plants.

"We look forward to working successfully with ARC on a number of projects, several of which have already been launched. Even more important are the long-term benefits we expect will result from a successful association." — Pat Dougan, research associate, Syncrude Canada Ltd

Measuring our impact

Accountability is a key value at ARC. We have developed a variety of measurements to help us assess our impact on Alberta's economy and the government's return on its investment in ARC's business.

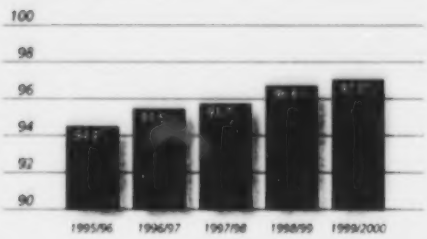
Specific measures are also tailored to each of our three businesses. For instance, under public good, we measure a number of factors, from jobs created to quality of life. We evaluate our contract R&D results using measures such as revenues, profitability and customer satisfaction. And we measure our performance in technology commercialization using outcomes such as new business opportunities, return on investment and spin-offs.

ARC's customer satisfaction is 97 per cent. Bill Kay, Industrial Ecology (left), and Lorena Forster, Technology Commercialization Office (right), work closely with Brian Fairman, vice-president, Amity Plastics Ltd. (centre)

Customer satisfaction

We achieve our primary impact on Alberta's economy through the customers we serve. Each year we conduct a customer satisfaction survey asking clients to rate us on our services, their interaction with our employees and the interest our employees show in their welfare. Our customer satisfaction rating has steadily increased to 97 per cent in 1999/2000.

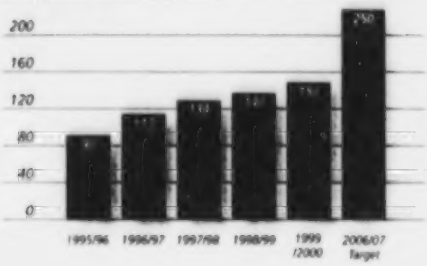
Customer satisfaction



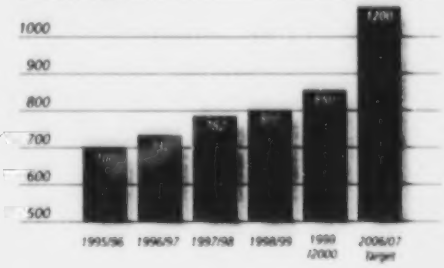
Economic impact

We also ask our customers to assess the value of working with ARC in terms of incremental sales and job creation. In 1995/96, our impact was estimated at $90 million in incremental sales and productivity improvements and 700 jobs. Our numbers for 1999/2000 are more than $150 million and 850 jobs. By 2006/07, we expect our customers and partners will have an economic impact of $250 million and generate 1,200 jobs.

Economic impact ($ millions)



Jobs created



Key measures of performance for 1999/2000:

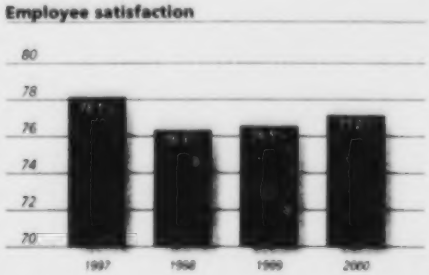
-
-
-
-

Employee satisfaction at ARC continues to rise. Tom Kosik, Fuels and Lubricants group

Employee satisfaction

Employee satisfaction continues to be high on our list of priorities: employee knowledge and experience determines our ability to move forward and implement our plans. In response to employees' feedback, we held a three-day conference on human resources management, added HR issues to manager's performance criteria and established a committee to revisit and update our corporate statement of values.

Employee satisfaction



Creating value through our intellectual assets

In 1999/2000, our employees submitted 31 new invention disclosures to our Technology Commercialization Office (TCO). We had 21 new patents approved and filed 30 patent applications for inventions by our scientists.

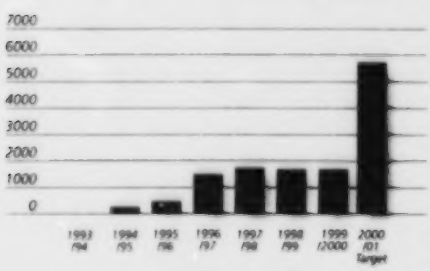
ARC generated $1.7 million in commercialization revenue from licensing and royalties, as well as sales of ARC-developed products. Our goal is to increase commercialization revenue to 10 per cent of our annual budget, or approximately $10 million, by 2005.

We invested in 328 projects this past year. All projects are stage-gated to manage the risks at four separate stages from idea to commercialization. We also licensed out two technologies and licensed in three external technologies for further development and eventual commercialization with an industrial partner.

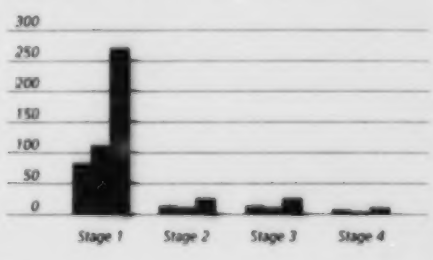
Our TCO also extends its commercialization services to other federal and provincial government organizations. In 1999/2000, we completed integration of the Alberta Oil Sands Technology and Research Authority's intellectual property portfolio into ARC's technology commercialization efforts.

We also reached an agreement with National Centre for Upgrading Technology (NCUT) for ARC to take an active role in providing leadership to NCUT's scientific and technical staff in assessing commercialization strategies for technologies arising from their R&D activities.

ARC royalties, licensing fees and product sales



Number of projects ■ 1997/98 ■ 1998/99 ■ 1999/2000



financial statements

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Consolidated statement of cash flows 32

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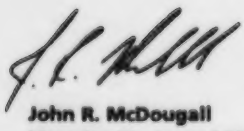
The accompanying financial statements and other financial information contained in this annual report are the responsibility of management and have been approved by the Board of Directors.

The financial statements have been prepared in accordance with generally accepted accounting principles, using management's estimates and judgements where appropriate. Financial and operating data elsewhere in the annual report are consistent with information contained in the financial statements.

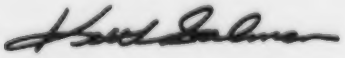
To discharge its responsibility for the integrity and objectivity of financial reporting, management maintains a system of accounting and administrative controls. This system is designed to provide management with reasonable assurance that transactions are properly authorized, assets are safeguarded against loss from unauthorized use or disposition, and that financial records are properly maintained to provide accurate and reliable financial statements.

The Board of Directors discharges its responsibility for the financial statements principally through its audit committee, which consists of three directors who are not officers or employees of the corporation.

The financial statements have been audited by the Auditor General of Alberta, who has full and free access to the audit committee. The auditor's report follows.



John R. McDougall
Managing Director and CEO



Keith D. Salmon C.A.
CFO and Corporate Secretary

AUDITOR GENERAL Alberta

To the Board of Directors of the Alberta Research Council Inc.

I have audited the consolidated balance sheet of the Alberta Research Council Inc. as at March 31, 2000 and the consolidated statements of revenue and expenditure and operating equity and cash flows for the year then ended. These financial statements are the responsibility of the Research Council's management. My responsibility is to express an opinion on these financial statements based on my audit.

I conducted my audit in accordance with generally accepted auditing standards. Those standards require that I plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In my opinion, these consolidated financial statements present fairly, in all material respects, the financial position of the Research Council as at March 31, 2000 and the results of its operations and cash flows for the year then ended in accordance with generally accepted accounting principles.

Peter Valentine

Peter Valentine
FCA

Auditor General
Edmonton, Alberta
April 28, 2000

Consolidated Balance Sheet

As at March 31, 2000 (in thousands of dollars)

	2000 $	1999 $
Assets		
Current:		
Cash and cash equivalents	8,947	13,273
Accounts receivable *(Note 4)*	9,993	6,173
Accrued income receivable	1,014	1,469
Prepaid expenses	665	304
	20,619	21,219
Capital:		
Assets *(Note 5)*	19,253	10,727
	39,872	31,946
Liabilities and Equity		
Current:		
Accounts payable and accrued liabilities	11,167	10,578
Unearned contract revenue	5,641	1,419
Promissory note	281	–
Current portion of long-term debt *(Note 6)*	336	–
	17,425	11,997
Long-term debt:		
Long-term debt *(Note 6)*	2,374	–
	19,799	11,997
Equity:		
Operating	20,073	19,949
	39,872	31,946

The accompanying notes are part of these financial statements.

Consolidated Statement of Revenue and Expenditure and Operating Equity

For the year ended March 31, 2000 (in thousands of dollars)

	2000 Budget $ (Note 14)	2000 Actual $	1999 Actual $
Revenue			
Investment from the Province of Alberta:			
General revenues *(Note 11)*	27,081	27,081	25,363
Indirect revenues *(Note 11)*	11,000	11,873	9,591
Contract revenue:			
Commercial	25,774	22,244	16,921
Alberta government departments and agencies	8,067	7,835	7,623
Royalties, licensing fees and product sales	1,350	1,706	1,716
	73,272	70,739	61,214
Expenditure			
Accommodation costs *(Note 11)*	11,000	11,873	9,591
Amortization	3,455	2,957	2,610
Computing supplies and services	1,974	1,706	2,214
Insurance	281	300	249
Legal and patent	789	1,183	1,034
Maintenance and rental	587	581	393
Materials and supplies	6,861	5,654	5,455
Other expenses	2,370	1,872	2,131
Professional, technical and labour services	5,118	6,542	4,739
Salaries, wages and benefits	37,596	35,476	30,491
Telephone	551	432	509
Travel and hospitality	2,153	1,907	1,516
Interest	200	132	–
	72,935	70,615	60,932
Net revenue for the year	337	124	282
Operating equity at beginning of year	19,949	19,949	19,667
Operating equity at end of year	20,286	20,073	19,949

Consolidated Statement of Cash Flows

For the year ended March 31, 2000 (in thousands of dollars)

	2000 $	1999 $
Operating activities:		
Net revenue for the year	124	282
Items not affecting cash:		
Indirect revenue	(11,873)	(9,591)
Accommodation costs	11,873	9,591
Amortization	2,957	2,610
Write off of goodwill on acquisitions	208	–
Net change in non-cash balances *(Note 9)*	1,085	2,434
Net cash provided by operating activities	4,374	5,326
Investing activities:		
Capital asset additions	(6,415)	(2,426)
Proceeds on disposal of capital assets	21	23
Net working capital acquired on acquisitions	(1,992)	–
Net cash used by investing activities	(8,386)	(2,403)
Financing activities:		
Repayment of long-term debt	(220)	–
Repayment of promissory note	(94)	–
Net cash used in financing activities	(314)	–
(Decrease) increase in cash	(4,326)	2,923
Cash and cash equivalents at beginning of year	13,273	10,350
Cash and cash equivalents at end of year	8,947	13,273

Consolidated Notes to the Financial Statements

For the year ended March 31, 2000 (all tabular amounts in thousands of dollars, except Note 12)

Note 1 Authority and Purpose

The Alberta Research Council Inc. is incorporated under the Alberta Corporations Act (Alberta). During the prior year, the Alberta Research Council operated under the authority of the Alberta Research Council Act, Chapter A-35.1, Statutes of Alberta 1981, which was repealed April 1, 1999. The Alberta Research Council Inc. ("Research Council") assumes the assets and undertakings of the Alberta Research Council and continues as a wholly owned subsidiary of the Alberta Science, Research and Technology Authority.

The Authority and its wholly owned subsidiaries are exempt from assessment or taxation for municipal or provincial purposes.

In partnership with global leaders, the Research Council advances the economy and well being of Alberta by providing technology and innovation to meet current and emerging needs of industry and government.

Note 2 Summary of Significant Accounting Policies and Reporting Practices

The consolidated financial statements have been prepared by management in accordance with accounting principles generally accepted in Canada. The precise determination of many assets and liabilities is dependent upon future events. Accordingly, the preparation of financial statements for a reporting period necessarily involves the use of estimates and approximations which have been made using careful judgement. Actual results could differ from those estimates. The consolidated financial statements have, in management's opinion, been properly prepared within reasonable limits of materiality and within the framework of the accounting policies summarized below.

(a) Basis of consolidation

These consolidated financial statements include the accounts of the Research Council and its wholly owned subsidiaries

- C-FER Technologies (1999) Inc. (formerly C-FER Inc.)
- 764330 Alberta Inc. (formerly C-FER Technologies Inc.)
- Petroleum Recovery Institute
- PRI Solutions Inc.

(b) Amortization

Capital assets are amortized on a straight-line basis over their estimated useful lives using the following annual rates:

Leasehold improvements	Twenty-five years
Equipment	Three to twenty years
Furniture and fixtures	Five years
Computer equipment and software	Three years
Building	Thirty years

(c) Patents and other intangible assets

Expenditures for patents owned by the Research Council as a result of research activity are not capitalized due to the uncertain value of benefits which may accrue to the Research Council.

Expenditures on the acquisition or development of other intangible assets including intellectual capital are not capitalized as there currently is not an acceptable methodology for measuring the value of future benefits accruing to the Research Council.

(d) Revenue recognition

Provincial investment funds, general revenues, are recognized as revenue in the year approved. Services and materials that are contributed to the Research Council are recognized as indirect revenues in the year they are received, provided that the fair value of the services and materials can be reasonably estimated and the materials and services are used in the normal course of operations.

Contract revenue is recognized as costs are incurred, up to the contract maximum and in accordance with contracted cost-sharing ratios. The Research Council makes full provision for all known or estimated losses on uncompleted contracts as soon as they can reasonably be estimated.

Royalties, licensing fee and product sales revenue is recognized when the amount can be reasonably estimated and there is reasonable assurance of collectability of proceeds.

(e) Pension

The Research Council participates in multi-employer pension plans with related government entities. Pension costs included in these statements comprise the cost of employer contributions for current service of employees during the year and additional employer contributions for service relating to prior years.

(f) Change in accounting policy

Effective April 1, 1999, the Research Council changed the way it accounts for its participation in multi-employer pension plans to a defined contribution basis. This change in accounting policy has been applied retroactively with restatement of comparative amounts. As a result of this change, opening operating equity as of April 1, 1998, has increased by $1,678,775. For the year ended March 31, 1999, the pension liability has decreased by $1,203,775, and the salaries, wages and benefits expense has increased by $475,000.

Note 3 Acquisitions

During fiscal 2000, the Research Council made the following acquisitions:

- Effective April 1, 1999, an Order in Council approved the transfer of the management and control of Petroleum Recovery Institute, and its subsidiary PRI Solutions Inc., to the Research Council for consideration of $nil. Petroleum Recovery Institute is a consortium-funded, research and technology development company supporting the needs of the oil industry.
- Effective July 31, 1999, an Order in Council approved the acquisition of all outstanding shares of C-FER Inc., and its subsidiary C-FER Technologies Inc., by the Research Council for cash consideration of $12. C-FER develops engineering innovations for the energy, transportation and manufacturing industry, and specializes in new processes for the offshore oil and gas industry.

These acquisitions have been accounted for using the purchase method and the results of operations have been included with those of the Research Council from their effective date of acquisition.

The net assets acquired from these acquisitions, at fair value, are summarized as follows

	C-FER Inc. $	Petroleum Recovery Institute $
Assets acquired:		
Net working capital	(1,041)	(951)
Capital assets	4,346	743
Goodwill	–	208
	3,305	–
Liabilities assumed:		
Long-term debt	(2,930)	–
Promissory note	(375)	–
	(3,305)	–
Net assets acquired at fair value	–	–
Consideration:		
Cash	–	–

Note 4 Accounts Receivable

	2000 $	1999 $
Commercial	6,714	3,781
Alberta government departments and agencies	3,279	2,392
	9,993	6,173

Note 5 Capital Assets

	2000			1999
	Cost $	Accumulated amortization $	Net $	Net $
Land	566	–	566	–
Building	2,106	107	1,999	–
Leasehold improvements	6,478	2,332	4,146	3,846
Equipment	37,664	25,974	11,690	6,488
Furniture and fixtures	726	524	202	25
Computer equipment and software	4,271	3,621	650	368
	51,811	32,558	19,253	10,727

Note 6 Long-term Debt

	$
7.32% Bank of Montreal mortgage, payable in monthly instalments of $40,887 including interest, due October 1, 2001	2,580
Bank of Montreal term loan, at prime, payable in monthly instalments of $4,161 plus interest, due October 12, 2002	130
	2,710
Less: Current portion	336
	2,374

A demand debenture with a fixed charge over land, building and equipment, a floating charge over other assets, an assignment of insurance proceeds and a general security agreement registered under the Personal Property Security Act creating a floating charge over all property and assets, both present and future have been pledged as collateral for the mortgage and term loan.

Estimated principal repayments during the next five years and in total are as follows:

	$
2001	365
2002	389
2003	395
2004	392
2005	422
Thereafter	747
	2,710

Note 7 Contingencies

(a) During fiscal 1999, the Research Council was made aware of a $4,079,174 claim naming the Research Council as the defendant. The claim relates to contamination produced from certain oil wells and arises out of a joint venture agreement to develop drilling fluid that would act as fracturing agent. A previous claim naming the Research Council as one of the defendants related to the same event was settled in the previous year. This matter has been referred to the insurers and the likelihood of loss or the amount of loss to the Research Council is not determinable at this time, however, management has stated that any losses would be fully covered by insurance. Any settlement that may occur would be accounted for as a charge against current year's earning at the time of settlement.

(b) During fiscal 2000, a statement of claim, relating to intellectual property ownership was filed by a former employee. Management feels that the claim is without merit, however, the likelihood of loss or the amount of the loss, if any, is not determinable at this time. Any settlement that may occur would be accounted for as a charge against current year's earnings at the time of settlement.

Note 8 Obligation Under Operating Leases

Future minimum lease payments requirements for office equipment and vehicles over the next four years, and in total are as follows:

	$
Year ending March 31, 2001	110
2002	83
2003	68
2004	16
	277

Note 9 Net Change in Non-cash Balances

	2000 $	1999 $
Accounts receivable	(3,820)	(76)
Accrued income receivable	455	710
Prepaid expenses	(361)	(98)
Accounts payable and accrued liabilities	589	1,648
Unearned contract revenue	4,222	250
	1,085	2,434

Note 10 Pension Plan

The Research Council participates in the multi-employers pension plans, Management Employees Pension Plan and Public Service Pension Plan and two Defined Contribution Plans. The expense for these pension plans is equivalent to the annual contributions of $1,499,753 for the year ending March 31, 2000 (1999 – $1,256,938).

The increase from the prior year is due to the acquisitions of C-FER Inc. and Petroleum Recovery Institute.

Note 11 Related Party Transactions

Accommodation and amortization expenditures

The premises occupied by the Research Council, as well as some office furniture and tenant improvements, have been provided by the Province of Alberta at no cost.

	2000 $	1999 $
Indirect revenue	11,873	9,591
Accommodation expenditure:		
Building maintenance	4,413	4,511
Grants in lieu of taxes	2,105	2,559
Lease costs	1,938	155
Non-capital project expenditures	1,287	650
Capital amortization	2,130	1,716
	11,873	9,591

During the year, the Research Council received $27,081,000 (1999 – $25,363,000) in general revenues from the Alberta Science, Research and Technology Authority.

During the year, contract revenue from Alberta government departments and agencies was $7,835,109 (1999 – $7,622,855).

Note 12 Salaries and Benefits

	2000			1999
	Salary[1] $	Benefits and Allowances[2] $	Total $	Total $
Chairman of the Board	15,000	160	15,160	15,135
Board Members	4,297	–	4,297	5,445
Chief Executive Officer	135,594	40,907	176,501	152,367
Executive/Vice-Presidents				
Chief Financial Officer	104,247	17,807	122,054	118,455
Vice-President, Forest Processes & Technologies	99,454	20,415	119,869	116,317
Vice-President, Agriculture, Bioscience & Health	112,356	22,181	134,537	128,052
Vice-President, Industrial Processes & Services	103,487	13,903	117,390	–
Vice-President, Energy Technologies[3]	102,500	23,306	125,806	–

(1) Salary includes regular pay, bonuses and lump sum payments.

(2) Benefits and allowances includes the employer's share of the cost of pension, Canada Pension Plan, Employment Insurance, dental, major medical, basic life insurance, short and long-term disability, employee allocation accounts and vacation accrual. It also includes car allowance, payments made in lieu of benefits, membership fees and living allowance.

(3) Effective August 1, 1999.

Note 13 Financial Instruments

Financial instruments consist of accounts receivable and accrued income receivable which will result in future cash receipts as well as accounts payable and accrued liabilities, promissory note and long-term debt which will result in future cash outlays.

Limitations

Fair values estimates are made at a specific point in time, based on relevant market information and information about the financial instrument. These estimates are subjective in nature and involve uncertainties and matters of significant judgement, and therefore cannot be determined with precision. Changes in assumptions could significantly affect the estimates.

Cash, accounts receivable, accrued income receivable, accounts payable and accrued liabilities

The fair values of cash, accounts receivable, accrued income receivable, accounts payable and accrued liabilities approximate their carrying values due to their short-terms to maturity.

Long-term debt and promissory note payable

The fair values of long-term debt and the promissory note payable approximate their carrying values due to the fact that their interest rates approximate the market rates at March 31, 2000.

Cash equivalents

At March 31, 2000, the Research Council owns the following:

(a) options, which expire May 5, 2001, to acquire 211,400 (1999 – 211,400) common shares of a public company exercisable at $1 per common share. The market value of this public company's common shares at March 31, 2000 was $7.30 (1999 – $2.32) per share. During the prior year, the Research Council agreed to share royalty and licensing revenue related to Chembiomed Ltd. technology. One-half of future revenues from identified licensing agreements are designated for collaborative carbohydrate research projects by the Research Council and the University of Alberta.

One-half of the exercised options to acquire the above noted 211,400 common shares are designated for collaborative carbohydrate research projects, as part of this agreement.

(b) options, which expire March 31, 2003, to acquire 55,000 (1999 – 75,000) common shares of a public company exercisable at $2 per common share. During the year, 20,000 options were sold for $16.13 per option. The market value of this public company's common shares at March 31, 2000 was $8.30 (1999 – $4.65).

(c) warrants, which expire June 30, 2002, to acquire 200,000 (1999 – 200,000) common shares of a public company exercisable at $2 per common share. The market value of this public company's common shares at March 31, 2000 was $0.60 (1999 – $0.40).

(d) 705,084 (1999 – 240,776) common shares of a non-publicly traded company. The market value of this company's common shares at March 31, 2000 is not reasonably determinable.

(e) 400,000 (1999 – 400,000) common shares of a non-publicly traded company. The market value of this company's common shares at March 31, 2000 is not reasonably determined.

(f) 430,250 (1999 – nil) common shares of a public company. The marketable securities are included in cash and cash equivalents at $150,588. The quoted market value of this public company's common shares at March 31, 2000 was $0.60 per share.

(g) during April 1999, the Research Council invested $80,000 in a private company in exchange for a 5% equity position. The market value of this company's shares at March 31, 2000 is not reasonably determinable.

The options, warrants and common shares which were originally acquired as part of the consideration for granting of various licenses, are recorded at nominal values, except otherwise noted.

The Research Council is subject to market risk with these stock options and warrants. As a result, the value of these financial instruments will fluctuate as a result of changes in market prices.

During fiscal 2000, the Research Council sold 17,392 Class A voting, common shares of a public company for $30,790. The shares were received in 1998 as consideration for contract work provided by the Research Council to the company. These marketable securities were originally recorded at $100,000 which represented the quoted market value of the shares at the time the contract work was completed. The marketable securities were revalued at March 31, 1999 to $26,088 in order to reflect the realizable value.

Note 14 Budget

The 2000 budget was approved by the Board of Directors on March 16, 1999.

Note 15 Approval of Financial Statements

These financial statements were reviewed by management and the audit committee, and recommended to the Board for approval.

Note 16 Comparative Figures

The comparative figures have been reclassified where necessary to conform with the current year's presentation.

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